

Claims

1.

A child-resistant package including

a container having a finish with an open mouth, at least one external thread adjacent to said open mouth, and at least one external radial projection on a side of said at least one external thread spaced from said open mouth, and

a closure having a base wall, a skirt with at least one internal thread adjacent to said base wall for engagement with said at least one external thread to thread said closure onto said finish, at least one internal locking lug spaced from said base wall, and an annular wall extending from said base wall at a position spaced radially inwardly from said skirt for resilient internal engagement with said open mouth of said container, said at least one internal locking lug being engageable with said at least one radial projection when said closure is fully threaded onto said finish of said container and resiliency of said annular wall holding said at least one internal locking lug in engagement with said at least one external radial projection.

2.

The package set forth in claim 1 wherein said closure includes at least one internal stop lug on said skirt adjacent to but spaced from said at least one internal locking lug on said skirt for engagement with said at least one external radial projection on said finish to prevent over-tightening of said closure on said finish of said container.

3.

The package set forth in claim 2 wherein said at least one external radial projection on said finish has a tangential leg portion and an axial leg portion at a counterclockwise end of said tangential leg portion, said tangential leg portion axially trapping said at least one internal locking lug on said skirt against a spring force of said annular wall.

4.

The package as set forth in claim 1, wherein said at least one external radial projection is located on a side of said at least one external thread opposite of said open mouth.

5.

The package as set forth in claim 1, wherein said annular wall is reverse angled from said base wall and terminates in an open end.

6.

The package as set forth in claim 5, wherein said annular wall includes an outer surface and an angled surface between said outer surface and said open end.

7.

The package as set forth in claim 6, wherein said open mouth is at least partially defined by an angled surface that cooperates with said angled surface of said annular wall of said closure to produce a spring force that tends to separate said closure from said container.

8.

The package as set forth in claim 1, wherein said at least one external radial projection of said container includes a cam surface and said at least one internal locking lug of said closure includes a cam surface, and wherein said cam surfaces cooperate to initially engage said at least one external radial projection and said at least one locking lug for securing said closure to said container in a child resistant manner.

9.

A child-resistant closure having

a base wall,

a skirt with at least one internal thread adjacent to said base wall for engagement with at least one external thread on a container finish to thread said closure onto said container finish,

an annular wall extending from said base wall at a position spaced radially inwardly from said skirt for resilient internal engagement with an open mouth of said container finish, and

at least one internal locking lug spaced from said base wall, said at least one internal locking lug being engageable with an external projection on said container finish when said closure is threaded onto said container finish and resiliency of said annular wall holds said at least one internal locking lug in axial engagement with said external projection.

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The closure set forth in claim 9 wherein said closure includes at least one internal stop lug on said skirt adjacent to but spaced from said at least one internal locking lug on said skirt for engagement with said external projection to prevent over-tightening of said closure on said container finish.

11.

The closure as set forth in claim 9, wherein said annular wall is reverse angled from said base wall and terminates in an open end.

12.

The closure as set forth in claim 11, wherein said annular wall includes an outer surface and an angled surface between said outer surface and said open end.

13.

A container having a finish with an open mouth defined at least in part by an internal tapered surface, at least one external thread adjacent to said open mouth, and at least one external radial projection on a side of said at least one external thread spaced from said open mouth, said at least one external radial projection having a cam surface for interengagement with a cam surface of an internal locking lug of a closure.

1 A child-resistant package including:

2 a container having:

3 a hollow cylindrical body; and

4 a cylindrical finish extending axially forward from said hollow
5 cylindrical body, said cylindrical finish having at least one radially extending projection and
6 at least one thread formed thereon axially forward of said at least one radially extending
7 projection, said cylindrical finish further having an inner surface having a tapered portion,
8 said cylindrical finish terminating in a forward axial direction in an open axial end; and

9 a closure having a base wall and an outer annular skirt extending from said
10 base wall, said outer annular skirt having an inner surface including:

11 at least one locking lug formed thereon; and

12 at least one thread formed thereon;

13 said closure further having a tapered inner annular skirt terminating in an open axial end, said
14 tapered inner annular skirt being disposed radially inwardly of said outer annular skirt and
15 tapering radially outwardly from said base wall toward said open axial end, said open axial
16 end being insertable internally within said open axial end of said container, said inner annular
17 skirt being flexibly engageable with said tapered portion of said inner surface of said
18 container under a diametrical interference fit, whereby said diametrical interference fit yields
19 a bias force on said inner annular skirt thereby generating a resultant axial force that tends to
20 maintain said at least one locking lug in substantial circumferential alignment with said at
21 least one radially extending projection of said container, wherein said at least one locking lug
22 and said at least one radially extending projection of said container circumferentially abut
23 one another to prevent removal of said closure from said container unless said resultant axial
24 force is overcome thereby axially displacing said at least one locking lug out of

25 circumferential alignment with said at least one radially extending projection of said
26 container such that said closure is removable from said container.